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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,236

02/07/2007

Sakae Koyata

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EXAMINER

CHEN, KIN CHAN

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

01/29/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,236	Applicant(s) KOYATA ET AL.	
	Examiner Kin-Chan Chen	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12222005;12242008</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kai et al. (US 6,043,156) as evidenced by Iizuka et al. (US 2004/0072437) or Netsu et al. (US 6,099,748).

In a method of making semiconductor wafers, Kai discloses an etching process storing acid etching solution and alkali etching solution in plural etching tanks, respectively, and immersing a silicon wafer gone through a lapping process and having degraded superficial layers in the acid etching solution and the alkali etching solution in order so as to remove the degraded superficial layers; a double surface polishing process to simultaneously polish the front and rear surfaces. Sodium hydroxide may be used for alkali etching. The etching process may be performed by the alkali etching after the acid etching. See col. 1, line 41; col. 3, lines 27-46; col. 4, lines 35-57.

The claimed invention differs from Kai by specifying well-known concentration of sodium hydroxide (e.g., 40-60 %, see abstract of Netsu as evidence) and by specifying polishing removal depth in the wafer surfaces and the difference between removal depth A and removal depth B. However, Kai discloses that the removal depth of surface A and B may be adjusted using the turning speed of the turn table depending on the requirement of the product (col. 3, lines 27-46), thus evidencing that such parameters are result-effective variables. The result-effective variables are commonly determined by routine experiment. The process of conducting routine experimentations so as to produce an expected result is obvious to one of ordinary skill in the art. In the absence of showing criticality or new, unexpected results, a person having ordinary skill in the art would have found it obvious to modify the prior art by performing routine experiments (by using different process parameters) to obtain optimal result with a reasonable expectation of success.

The limitations of claims 1-3 have been addressed above and rejected for the same reasons, *supra*.

As to dependent claim 4, see col. 4, lines 43-44.

As to dependent claims 5 and 6, the disclosure of Kai is not limited to any particular resistance value of the silicon wafer but teach making silicon wafer. Hence, it would have been obvious to one with ordinary skill in the art to apply the method to commonly available silicon wafers including the claimed ones. The above-cited claims differ from the prior art by specifying various compositions (the mixing ratio of acids). However, same were known to be result-effective variables and commonly determined by routine experiment. The process of conducting routine experimentations so as to produce an expected result is obvious to one of ordinary skill in the art. In the absence of showing criticality or new, unexpected results, a person having ordinary skill in the art would have found it obvious to modify the prior art by performing routine experiments (by using different compositions) to obtain optimal result with a reasonable expectation of success. See Iizuka et al. ([0005]) or Netsu et al. (col. 1, lines 31-33) as evidencing that the mixing ratio of acids (HF, HNO₃, and acetic acid) is result-effective variables.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Iizuka et al. (US 2004/0072437; [0005]) or Netsu et al. (US 6,099,748; col. 1, lines 31-33) disclose that the mixing ratio of acids (HF, HNO₃, and

Art Unit: 1792

acetic acid) may be varied to control the etching rate and the condition of the wafer surface. Netsu (abstract) discloses that the concentration of sodium hydroxide may be 50-55% by weight.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (571) 272-1461. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kin-Chan Chen/
Primary Examiner, Art Unit 1792

January 24, 2009

Application/Control Number: 10/562,236
Art Unit: 1792

Page 6